

CLAIMS

1. A method for treating a fetus comprising administering mesenchymal stem cells to the fetus.

5

2. The method of Claim 1 wherein the mesenchymal stem cells differentiate in vivo.

10

3. The method of Claim 1 wherein the mesenchymal stem cells are modified with exogenous genetic material.

4. The method of Claim 1 wherein said fetus is non-human.

15

5. The method of Claim 4 wherein said mesenchymal stem cells are human.

6. A method of engrafting mesenchymal stem cells, comprising: administering mesenchymal stem cells to a fetus in utero.

20

7. The method of Claim 6 wherein said fetus is non-human.

8. The method of Claim 7 wherein said mesenchymal stem cells are human.

9. A method of preparing an organ for transplantation, comprising:

25

(a) administering mesenchymal stem cells to a non-human fetus in utero; and

(b) harvesting said organ.

30

10. The method of Claim 9 wherein said non-human fetus is ovine.

11. The method of Claim 9 wherein said mesenchymal stem cells are human.

35

12. The method of Claim 9 wherein said organ is harvested after the birth of said fetus.

13. A method of xenotransplantation comprising: transplanting the organ of Claim 12 into a human patient.

40

14. The method of Claim 13 wherein said organ is a heart.

15. The method of Claim 13 wherein said organ is a pancreas.

16. The method of Claim 13 wherein said organ is a kidney.

45

17. The method of Claim 13 wherein said organ is a liver.
18. The method of Claim 13 wherein said organ is skin.
- 5 19. The method of Claim 13 wherein said organ is a thymus.
20. The method of Claim 13 wherein said organ is a spleen.
21. The method of Claim 13 wherein said organ is bone marrow.
- 10 22. The method of Claim 13 wherein said organ is cartilage.
23. Th method of Claim 13 wherein said organ is bone.
- 15 24. A hybrid organ comprising an organ of an animal of a first species and mesenchymal stem cells from a second species.
25. The hybrid organ of Claim 24 wherein the mesenchymal stem cells have differentiated into cells of that organ.
- 20 26. The hybrid organ of Claim 24 wherein said first species is non-human, and said second species is human.
- 25 27. The hybrid organ of claim 24 wherein said organ of an animal of a first species is selected from heart, lung, kidney, pancreas, skin, liver, spleen, thymus, bone, cartilage, and bone marrow.